

WHAT IS CLAIMED IS:

1. An apparatus comprising:

5 a memory for storing a degradation function and a received digital signal comprising an input digital signal that has been corrupted by a channel and a partially corrected sequence of symbols comprising an output of a preliminary denoising system operating on said received digital signal, said degradation function providing a measure of the signal degradation that occurs if a symbol having the value I is replaced by a symbol having a value
10 J in said received digital signal; and

a controller that generates a processed digital signal from said received digital signal by replacing symbols in said received digital signal, wherein said controller replaces each symbol having a value I in a context of that symbol in said received digital signal with a
15 symbol having a value J if said replacement reduces an estimate of overall signal degradation in said processed digital signal relative to said input digital signal as determined using said degradation function and said partially corrected sequence of symbols.

2. The apparatus of Claim 1 wherein said controller determines the frequency with
20 which instances of one of said symbols in said received signal in one of said contexts is replaced by various symbols in said partially corrected sequence of symbols.

3. The apparatus of Claim 1 further comprising a third memory for storing a first list having the identity of each subsequence of a first length within said received digital signal
25 and a table specifying the number of times a symbol at a specific location within that subsequence is replaced by various other symbols in said partially corrected sequence of symbols.

4. The apparatus of Claim 1 further comprising a denoising system for generating
30 said partially corrected sequence of symbols from said received digital signal.

5. The apparatus of Claim 3 wherein said third memory also stores a second list having the identity of each subsequence of a second length within said received digital signal

and a table specifying the number of times a symbol at a specific location within that subsequence is replaced by various other symbols in said partially corrected sequence of symbols.

5 6. The apparatus of Claim 5 wherein said context is chosen from one of said first and second lists, said choice depending on said number of occurrences for subsequences in said first list and said second list.

10 7. A method for processing a received digital signal comprising an input digital signal that has been corrupted by a channel to generate a processed digital signal, said method comprising:

storing said received digital signal;

15 receiving a partially corrected sequence of symbols comprising an output of a preliminary denoising system operating on said received digital signal;

storing information specifying a signal degradation function that measures the signal degradation that occurs if a symbol having the value I is replaced by a symbol having value J;
20 and

generating said processed digital signal by replacing each symbol having a value I in a context of that symbol in said received digital signal with a symbol having a value J if replacement reduces an estimate of overall signal degradation in said processed digital signal
25 relative to said input digital signal as determined using said degradation function and said partially corrected sequence of symbols.

8. The method of Claim 7 wherein said measure of overall signal degradation depends on the frequency with which instances of one of said symbols in said received signal
30 in one of said contexts is replaced by various symbols in said partially corrected sequence of symbols.

9. The method of Claim 7 comprising storing a first list having the identity of each subsequence of a first length within said received digital signal and a table specifying the number of times a symbol at a specific location within that subsequence is replaced by various other symbols in said partially corrected sequence of symbols.

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10. The method of Claim 7 further comprising generating said partially corrected sequence of symbols from said received digital signal.

10 11. The method of Claim 9 further comprising storing a second list having the identity of each subsequence of a second length within said received digital signal and a table specifying the number of times a symbol at a specific location within each said subsequence is replaced by various other symbols in said partially corrected sequence of symbols.

15 12. The method of Claim 11 wherein said context is chosen from one of said first and second lists, said choice depending on said number of occurrences for subsequences in said first list and said second list.

20 13. A computer readable medium encoded with a data processing program for processing a received signal comprising an input digital signal that has been corrupted by a channel to generate a processed signal, said data processing program causing a data procession system:

25 to store said received digital signal;

to receive a partially corrected sequence of symbols comprising an output of a preliminary denoising system operating on said received digital signal;

30 to store information specifying a signal degradation function that measures the signal degradation that occurs if a symbol having the value I is replaced by a symbol having value J; and

to generate said processed digital signal by replacing each symbol having a value I in a context of that symbol in said received digital signal with a symbol having a value J if replacement reduces an estimate of overall signal degradation in said processed digital signal relative to said input digital signal as determined using said degradation function and said
5 partially corrected sequence of symbols.

14. The computer readable medium of Claim 13 wherein said measure of overall signal degradation depends on the frequency with which instances of one of said symbols in said received signal in one of said contexts is replaced by various symbols in said partially
10 corrected sequence of symbols.

15. The computer readable medium of Claim 13 wherein said data processing system is also caused to store a first list having the identity of each subsequence of a first length within said received digital signal and a table specifying the number of times a symbol at a
15 specific location within that subsequence is replaced by various other symbols in said partially corrected sequence of symbols.

16. The computer readable medium of Claim 13 wherein said data processing system is also caused to generate said partially corrected sequence of symbols from said received
20 digital signal.

17. The computer readable medium of Claim 15 wherein said data processing system is also caused to store a second list having the identity of each subsequence of a second length within said received digital signal and a table specifying the number of times a symbol at a
25 specific location within that subsequence is replaced by various other symbols in said partially corrected sequence of symbols.

18. The computer readable medium of Claim 17 wherein said context is chosen from one of said first and second lists, said choice depending on said number of occurrences for
30 subsequences in said first list and said second list.